

Method & Apparatus Using Reverse Disk Rotation to Achieve Slider Contact with a Disk Surface

Abstract

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One embodiment of the invention is a method for burnishing a slider in a disk drive in which the disk is rotated in the opposite or reverse direction from that used to develop the air-bearing and to read and write data. Rotating the disk in the reverse direction results in no air-bearing being formed and the slider being in contact with the disk surface. The burnishing removes material over the magnetic transducers in the slider which separate the transducers from the disk resulting in greater sensitivity. Optionally the stopping point for burnishing can be determined by monitoring measurable parameters such as the change in the MR resistance (MRR), i.e., $\Delta\text{MRR}/\text{MRR}$ until a selected range is achieved. The burnishing techniques of the invention are used to remove material, such as an overcoat, from the air-bearing surface of the slider which separates the magnetoresistive element from the magnetic medium. If the substrate of the slider protrudes above the elements of the read head, the burnishing can be continued until the substrate has been abraded to be substantially coplanar with the elements of the read head. In another embodiment, the slider is used to remove debris from the disk surface by sweeping the slider over the disk surface while the disk is being rotated in the non-air-bearing direction.

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